List of Publications on

WOOD FINISHING SUBJECTS

August 1944

No. R454

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
FOREST PRODUCTS LABORATORY
Madison, Wisconsin
In Cooperation with the University of Wisconsin

TABLE OF CONTENTS

INSTRUCTIONS FOR OBTAINING PUBLICATIONS

Publications available for distribution at this Laboratory are marked with an asterisk (*).

Single technical notes, reprints, and mimeograph reports may be obtained free upon request from the Director, Forest Products Laboratory, Madison, Wis. A bound volume of the technical notes only, containing the notes listed here and notes dealing with other subjects, in all more than 100 notes, may be purchased for $1.00. (This volume does not include the reprints and mimeograph reports mentioned in the list.) Remittance should accompany your order and be made by certified check or postal money order to the Treasurer of the United States.

Federal Government bulletins, circulars, and leaflets, if not available for free distribution at this Laboratory, may be purchased at the prices indicated, from the Superintendent of Documents, Government Printing Office, Washington, D. C. Send money order, draft, or cash; stamps or personal checks are not accepted.

Trade journals containing articles herein listed may often be purchased from the publishers or may be consulted in various libraries.

The Forest Products Laboratory reserves the right to furnish only those publications which in its judgment will give the information requested. Blanket requests or requests for a large number of copies of any individual article will not be filled except in unusual cases.

WOOD FINISHING SUBJECTS LISTED

Since 1922 the Forest Products Laboratory has been actively studying the painting of exterior woodwork, particularly house painting, in order to supply basic information for improving the serviceability of wood as a building material. Data are obtained from practical exposure tests at Madison and other parts of the country, from laboratory tests designed to study specific conditions of service, and from consultation with many house owners about their painting experience. Publications of broad scope are listed under a GENERAL heading. The first subject in house painting taken up was the PAINTING CHARACTERISTICS OF WOOD, that is, the effect of the nature of the wood on the behavior of paint coatings. In the conduct of the work improvements were made in the TECHNIQUE OF EXPOSURE TESTING. The next subject studied was SPECIAL PRIMERS AND PRIMING PROCEDURES, particularly in the effort to improve the durability of paint on the woods that hold paint less well. Experiments were made from time to time on the TECHNIQUE OF APPLYING PAINT and special attention was paid to the TECHNIQUE OF MAINTAINING PAINT over long periods of years. The COMPOSITION OF PAINT is studied chiefly from the point of view of selecting paint wisely and applying it correctly for the kind of maintenance program and the specific conditions of service in which the house owner will use it.

Attention has been given to the uses and limitations of paint as a protective coating for wood under the headings: THE WEATHERING OF WOOD and COATINGS FOR RETARDING MOISTURE MOVEMENT. The work under the latter heading goes back to 1917 when studies were made of coatings for preventing the swelling and warping of airplane propellers during shipment to France.

Information about unreasonably early PAINT FAILURES WHEN WOOD BECOMES WET is derived largely from practical observations of houses in which such conditions have arisen, although a technique has been developed for reproducing such paint failures in the laboratory. The PAINTING OF TREATED WOOD becomes necessary in certain uses where preservation against decay and painting for decoration are both required.

Other aspects of wood finishing, such as INTERIOR WOOD FINISHING, although falling within the field of work of the Forest Products Laboratory, have so far been studied only in a preliminary way and practically without experimentation.

General

Painting and finishing wood. Chapter in "Wood Handbook" of the Forest Products Laboratory, unnumbered publication of the U. S. Department of Agriculture. Handbook available from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 35 cents, cash or money order.

*Some books on paint and varnishes and wood finishing (a list). Tech. Note 195. Revised Nov. 1935.

*When and how to paint homes and farm buildings, by F. L. Browne. The President's Conference on Home Building & Home Ownership, Final Reports of Committees, V. 7, Farm & Village Housing, p. 102. 1932.
..Same. Mimeograph R962, revised May 1938.

Developments in the stabilization of paint practice for wood, by F. L. Browne. Amer. Soc. of Mech. Engrs., Transactions, Wood Industries, 53:53, Sept. 15, 1931.

Wood finishing studies at the Forest Products Laboratory, by F. L. Browne. Am. Paint & Varn. Mfrs. Assn., Sci. Sec., Circ. 184, p. 278, June 1923.

Painting Characteristics of Wood

*Painting hardwoods in farm building, by F. L. Browne. Mimeo. R1291.
..Same: Painting characteristics of hardwoods. Natl. Painters Magazine, Sept. 1942.

A new aspect of the signboard story, by F. L. Browne. Paint, Oil & Chem. Review, 101(8):18, Apr. 13, 1939.

Effect of extractive substances in certain woods on the durability of paint coatings, by F. L. Browne. Indus. & Eng. Chem., 28:416, Apr. 1, 1936.
..Same. Discussion by F. L. Browne. Natl. Paint Bulletin, 3(2):5, Feb. 1939.

*Behavior of house paints on different woods, by F. L. Browne. Mimeo. R1053, 1935.

*Durability of paint on longleaf and shortleaf pine, by F. L. Browne. South. Lbrman., 146:20, Feb. 1, 1933.

Adhesion in the painting and in the gluing of wood, by F. L. Browne. Indus. & Eng. Chem., 23:290, Mar. 1931.

The effect of resin in longleaf pine on the durability of house paint, by F. L. Browne and C. E. Hrubesky. Indus. & Eng. Chem., 23:874, Aug. 1,1931.

Properties of wood that determine the service given by exterior paint coatings, by F. L. Browne. Federation of Paint & Varnish Production Clubs, Official Digest No. 95, p. 106, Apr. 1930.
..Same. Amer. Paint Jour., 14:22, Apr. 7, 1930.
..Same. Paint, Oil & Chem. Rev., Mar. 20, 1930.

*Why some wood surfaces hold paint better than others, by F. L. Browne. U. S. Dept. Agr. Leaflet 62, Sept. 1930.

Painting Characteristics of Wood (continued)

Why wood painting research becomes a problem in forestry, by F. L. Browne. Jour. Forestry, 28:1136, Dec. 1930.

Wood painting: a new point of view in an old field of research, by F. L. Browne. Eng. Foundation, Popular Research Narratives, No. 158, Jan. 15, 1930.

The painting characteristics of different woods. Painters Magazine, 54:40, Mar. 1927.

A technical study of wood painting practice, by F. L. Browne. Amer. Paint Jour., 11:20, Feb. 14, 1927.
..Same. Amer. Painter & Decorator, 4:60, Mar. 1927.

The paintability of different woods, by F. L. Browne. West Coast Lbrman., 50:157, May 1, 1926.

The painting characteristics of wood - II. Results after two years exposure, by F. L. Browne. Amer. Paint & Varnish Mfrs. Assn., Scientific Section, Circ. 290, p. 202, Oct. 1926.

The painting characteristics of wood, by F. L. Browne. South. Lbrman., 125:219, Dec. 8, 1926.

The painting of wood, by F. L. Browne. Save the Surface Magazine, 4:12, Mar. 1925.

The painting characteristics of different kinds of wood, by F. L. Browne. Amer. Paint & Varnish Mfrs. Assn., Scientific Section, Circ. 219, p. 125, Nov. 1924.

Painting characteristics of hardwoods, by F. L. Browne. Indus. & Eng. Chem., 27:42, Jan. 1, 1935. (Information incorporated in Mimeo. R1053.)

Technique of Exposure Testing

Discussion by F. L. Browne in symposium on correlation between accelerated Laboratory tests and service tests on protective and decorative coatings. Amer. Soc. Testing Materials, Special pamphlet, June 29, 1937.

*Testing house paints for durability, by F. L. Browne. Jour. Chem. Education, 10:529, Sept. 1933.
..Same. Mimeo. R1011.

Procedure used by the Forest Products Laboratory for evaluating paint service on wood, by F. L. Browne. Amer. Soc. Testing Materials, Proceedings, 30 2:852, 1930.

Technique of Exposure Testing (continued)

A principle for testing the durability of paints as protective coatings for wood, by F. L. Browne. Indus. & Eng. Chem., 19:982, Sept. 1927.

A quantitative test of the durability of paints as protective coatings for wood, by M. E. Dunlap and F. L. Browne. Drugs, Oils & Paints, p. 19, June 1926.

Special Primers and Priming Procedures

*The two-coat system of house painting, by F. L. Browne. Indus. & Eng. Chem., July, 1941.
..Same. Mimeo. R1259.

Special priming paints for wood, by F. L. Browne. Indus. & Eng. Chem., 27:292, Mar. 1935.

Effect of aluminum priming paint on the durability of house paints on wood, by F. L. Browne. Indus. & Eng. Chem., 26:369, Apr. 1934.

Priming-coat reductions for painting new wood surfaces, by F. L. Browne for the St. Paul Test Fence Committee.

Fourth Progress Report. Amer. Paint Jour., 19:7, Dec. 10, 1934.
Third Progress Report. Amer. Paint & Varnish Mfrs. Assn., Scientific Section, Circ. 445:454, Nov. 1933.
..Same. Oil, Paint & Drug Reporter, 124:68, Nov. 16, 1933.
..Same. Paint, Oil & Chem. Rev., 95:67, Nov. 2, 1933.
Second Progress Report. Official Digest of the Federation of Paint & Varnish Production Clubs, No. 121, p. 1068, Dec. 1932.
First Progress Report. Amer. Paint & Varnish Mfrs. Assn., Scientific Section, Circ. 404:596, Dec. 1931.

Effect of priming-coat reduction and special primers upon paint service on different woods, by F. L. Browne. Indus. & Eng. Chem., 22:847, Aug. 1, 1930.

Technique of Applying Paint

The fading of painted surfaces, by F. L. Browne. Ry. Eng. & Maintenance, 33:606, Sept. 1937.

A kind word for brush marks, by F. L. Browne. Paint, Oil & Chem. Rev., 98(12):16, June 1936.
..Same. Canadian Paint & Varnish Magazine, 10:6, Oct. 15, 1936.

Stingy paint application often a danger, by F. L. Browne. Natl. Painters Magazine, II:10, Aug. 1935.

An exposure test on repainting wood surfaces, 1st Progress Report, by F. L. Browne, for the St. Paul Test Fence Committee. Natl. Paint Var. & Lacquer Mfrs. Assn., Sci. Sec., Circ. 495:344, Nov. 1935.
..Same. Amer. Paint Jour., 19(53A):8, 21, Oct. 29, 1935.
..Same. Oil, Paint & Drug Reporter, 128(22):58-60, Nov. 14, 1935.
..Same. Paint, Oil & Chem. Rev., 97(23):87-89, 136, Nov. 14, 1935.
..Same. Paint & Varnish Production Manager, 13(5):45-48, Nov. 1935.

Repainting old paint-thirsty surfaces, by F. L. Browne. Paint, Oil & Chem. Rev., 97:11, May 16, 1935.

How many coats of paint? by F. L. Browne. Ry. Eng. & Maintenance, 31(4):241, Apr. 1935.

The spreading rates of outside white house paints on different woods, by F. L. Browne. Drugs, Oils & Paints, 42:230, Dec. 1926; 42:268, Jan. 1927.
..Same. Painters Magazine, 54:10, Jan. 1927.

Technique of Maintaining Paint

Painting your house, by F. L. Browne. Amer. Forests, 45:261, May 1939.

*What can be done to make paint maintenance more successful, by F. L. Browne. Amer. Paint Jour., 22(22):22, Mar. 7, 1938; (23):21, Mar. 14, 1938. Mimeo. R1198.
..Same. Paint, Oil & Chem. Rev., 100(8):9, Apr. 14, 1938.
..Same. Drugs, Oils & Paints, 53(7):251, July 1938. See also (9):317, Sept. 1938.
..Same. South. Lbrman., 158(1988):51, Feb. 1, 1939.
..Same. Under title "Some painting problems and the answers." Natl. Real Estate Jour., 40(10):36, Sept. 1939.

Effect of climatic differences on paint behavior, by F. L. Browne. Pacific Purchaser, 20(2):13, Feb. 1938.

*Have you a paint maintenance program? by F. L. Browne. Amer. Home, 17:41, Apr. 1937.
..Same. The program of paint maintenance for the frame house. Mimeo.R1127.

Technique of Maintaining Paint (continued)

Painting problems --what they are today, by F. L. Browne. Railway Eng. & Maintenance, 33:104, Feb. 1937.
..Same. Pulp & Paper Magazine of Canada, 38(5):346, Apr. 1937.
..Same. Paint for building and structural uses. Railway Age, 101 (19): 686, Nov. 7, 1936.

The house paint problem -- let's stop passing the buck, by F. L. Browne. Paint, Oil & Chem. Rev., 99(4):9-12, Feb. 18, 1937.

Some facts about house paint complaints, by F. L. Browne. Wood Construction, 23(5):5, Mar. 1, 1937.
..Same. South. Lbrman., 154(1942):35, Mar. 1, 1937.
..Same. Pacific Retail Lbrman., 4(1-2), June 1937.

A case of hail stone damage to paint, by F. L. Browne. Paint, Oil & Chem. Rev., 98(21):36, Oct. 15, 1936.

What painters can do to prevent paint complaints, by F. L. Browne. Natl. Painters Magazine, 3:10, Mar.; 10, Apr.; 18, May; 16, June 1936.

What paint salesmen can do to prevent paint complaints, by F. L. Browne. Paint, Oil & Chem. Rev., 97:10, Aug. 8, 1935.
..Same. Oil, Paint & Drug Reporter, 50(11):472-74, Nov. 1935.
..Same. Can. Paint & Varnish Magazine, 9:6, Sept.; 6, Oct. 1935.

A trouble-shooter's view of the gamble in house paint, by F. L. Browne. Paint, Oil & Chem. Rev., 97(21):28, Oct. 17, 1935.

*Repainting paint-neglected frame houses, by F. L. Browne. Natl.Painters Mag., 2:15, Apr.; 14, May; 6, June 1935. Mimeo. R1135.

Painting exterior woodwork, by F. L. Browne. Pac. Purchaser, 16:18, Feb.1934.

Farm buildings should be repainted before wood weathering begins, U. S. Dept. Agr. Yearbook, p. 196, 1932.

Composition of Paint

Open letter, "It needs more than a formula," by F. L. Browne. Paint Indus. Mag., p. 79, Mar. 1940.

Open letter, "Formula labeling," by F. L. Browne. Natl. Paint Jour.,May 1939.

Classification of house paints as a guide to the study of formulation, by F. L. Browne. Offi. Digest, Federa. Paint & Varn. Produc. Clubs, No. 172, 18, Jan. 1938. Drugs, Oils & Paints, 53(3):92, Mar. 1938.

Composition of Paint (continued)

*A proposed system of classification for house paints, by F. L. Browne. Indus. & Eng. Chem., 29(9):1018, Sept. 1937.
..Same. Amer. Paint Jour., 22(1):20, Oct. 11; (2):32, Oct. 18, 1937.
..Same. Can. Paint & Var. Mag.,12(4):16, Apr. 15, 1938. Mimeo. R1124. Discussion by B. D. Buckminster, Amer. Paint Jour., 22(3A):7, Oct. 6, 1937. Reply by F. L. Browne, 100(13)24, June 23, 1938; Fed. Paint & Var. Produc. Clubs, Official Digest (177):298, June 1938. Discussion by F. L. Browne, Natl. Paint Bulletin, 3(5):8, May 1939. Editorial comment, Paint Industry Magazine, 55(1):9, Jan. 1940; reply by F. L. Browne, 55(3):79, Mar. 1940.

Discussion of W. W. Kittelberger's paper on "Influence of Variations in Wood Graining Angle upon the Accelerated Weathering Testing of Exterior House Paints," by F. L. Browne. A.S.T.M. Bulletin, No, 107, p. 34, Dec. 1940.

Buy paint for a planned maintenance program, by F. L. Browne. Pacific Purchaser, 19(2):15, Feb. 1937.

Effect of change from linoxyn gel to xerogel on the behavior of paint, by F. L. Browne. Colloid Symposium Monograph for June 1934, V. 11, p. 211, The Williams & Wilkins Co., 1935.

Paint thinners - I. Effect of different paint thinners on the durability of house paints in outdoor exposure tests, by F. L. Browne. Indus. & Eng. Chem., 23:868, Aug. 1931.

Paint thinners - II. Results of accelerated weathering tests of white house paints reduced with different types of thinners, by H. K. Salzberg, F. L. Browne, and I. H. Odell. Indus. & Eng. Chem., 23:1214, Nov. 1931.

Drying of exterior paints under various conditions and over different woods, by F. L. Browne. Indus. & Eng. Chem., 22:400, Apr. 1930.

The right paint for your job, by F. L. Browne. Successful Farming, May 1941.

*Classification of house and barn paints, as recommended by the United States Department of Agriculture, by F. L. Browne. U. S. Dept. Agr. Tech. Bul. 804. 1942.

The Weathering of Wood

*Weathering and decay. Tech. Note 221.

Why wooden buildings need paint protection, by F. L. Browne. Factory, p. 655, Oct. 1927.

Armour plating wood, by F. L. Browne. Save the Surface Magazine, p. 5, Sept. 1927.

Neglected places, by F. L. Browne. Save the Surface Magazine, p. 4, June 1927.

How to prevent decay when building of wood, by F. L. Browne, Factory, 36:882, May 1926.

Paint and first stages in the weathering of wood, by F. L. Browne, Amer. Paint & Varnish Mfrs. Assn., Scientific Section, Circ. 238, p. 289, June 1925.

The role of paint and varnish in wood conservation, by F. L. Browne. Amer. Paint Jour., 9:56, Aug. 24, 1925.
..Same. Drugs, Oils & Paints, Aug. 1925.
..Same. Amer. Painter & Decorator, 2:58, Oct. 1925.

Weathering and decay of wood, by F. L. Browne. Save the Surface Magazine, 5:1, June 1925.

Timber saving by painting and preservation, by F. L. Browne. Amer. Lbrman., No. 2582:59, Nov. 8, 1924.
..Same. Amer. Paint Jour., 9:3, Nov. 17, 1924.

Coatings for Retarding Moisture Movement

*Effectiveness of paints as protective coatings for wood, by F. L. Browne. Mimeo. R974, revised Apr. 1936.
..Same. Effectiveness of paints in retarding moisture absorption by wood. Indus. & Eng. Chem., 25:835, Aug. 1933.
..Same. Paints as protective coatings for wood. Indus. & Eng. Chem., 28:798, July 1936.

*Degree of protection afforded wood against moisture by paint coatings, by F. L. Browne. Paint, Oil & Chem. Rev., 95:9, Sept. 7, 1933.

*Aluminum coatings for moisture proofing wood. Tech. Note 228. Rev. Aug.1940.

*Coatings that prevent end checks. Tech. Note 186. Revised Aug. 1943.

*Coatings for minimizing changes in the moisture content of wood. Tech. Note 181. Revised 1933.

*Uneven coatings on wood cause warping. Tech. Note D-12.

*Effectiveness of moisture-excluding coatings on wood, by G. M. Hunt. U. S. Dept. Agr. Circ. 128, 1930.

Protecting wood from moisture, by M. E. Dunlap. Indus. & Eng. Chem., 18:1230, Dec. 1926.
..Same. Scientific Amer., 136:200, Mar. 1927.

The value of paint primers in protecting wood, by M. E. Dunlap. Mechanical Eng., 48:1457, Dec. 1926.

Efficiency of aluminum leaf covering on airplane propellers, by A. C. Knauss. Scientific Amer. Monthly, 1:124, Feb. 1920.

Moisture resistant finishes for airplane woods, by M. E. Dunlap. Natl. Advisory Committee for Aeronautics Report 85. 1920. Out of print.

Effect of number of coats upon the moisture resistance of spar varnish, by C. A. Harrison and M. E. Dunlap. U. S. Air Service, Eng. Div., Tech. Orders 6, p. 30, Mar. 1919.

*Study of temperature and moisture content in wood aircraft wings in different climates, by F. L. Browne, L. E. Downs, D. F. Laughnan, and A. C. Schwebs. Mimeo. 1597, Feb. 1944.

*Moisture excluding effectiveness and weight of aircraft finishes on papreg and on plywood, by F. L. Browne and A. C. Schwebs. Mimeo, 1598, May 1944.

Paint Failures When Wood Becomes Wet

Window conditioning urged to halt condensation effects, by F. L. Browne. Amer. Builder, 60(8):56, 94, Aug. 1938.
..Same. Miss. Valley Lbrman., 69(43):30, Oct. 28, 1938.
..Same. Amer. Lbrman., (3138):60, Nov. 5, 1938.

*Condensation problems in modern buildings, by L. V. Teesdale. Mimeo. R1196, revised May 1941.
..Same. Northwest Architect, Mar.-Apr. 1939.
..Same. Domestic Engineering, Apr. 1939.
..Same. Building Supply News, Apr. 1939.

*Some causes of blistering and peeling of paint on house siding, by F. L. Browne. Amer. Paint & Varnish Mfrs. Assn., Scientific Sec., Cir. 317, p. 480, Oct. 1927.
..Same. Mimeo. R6, revised 1933.
Digest entitled "Some causes and cures for painting troubles." Natl. Real Estate Jour., 40(11):42, Oct. 1939.

Paint Failures When Wood Becomes Wet (continued)

Comparative resistance to vapor transmission of various building materials, by L. V. Teesdale. Heating, Piping & Air Conditioning 14(12):736-742, Dec. 1942.

Painting Treated Wood

Durability of paint on wood treated with zinc chloride, by F. L. Browne. Amer. Wood-Preservers' Assn., Proceedings, p. 410, 1934.
..Same. Railway Eng. & Maintenance, 30:81, Feb. 1934.

The painting of treated wood, by M. E. Dunlap. Indus. & Eng. Chem., 18:1091, Oct. 1926.

Interior Wood Finishing

*Selection, installation, finish, and maintenance of wood floors for dwellings, by R. K. Helphenstine, Jr. U. S. Dept. Agr. Circ. 489, 1938. (This circular contains a discussion of finishing floors by F. L. Browne.)

Wood finishing, a glance ahead, by F. L. Browne. Mech. Engr., 48:1286, Nov. 1926.
..Same. Music Trade Indicator, Dec. 11, 1926.
..Same. Furniture Mfr., 93:65, Jan. 1927.
..Same. Railway Mech. Engr., 101,277, 1927.
..Same. Automotive Mfr., P. 9, Jan. 1927.
..Same. Automobile Trimmer & Painter, 6:45, Mar. 1927.

Miscellaneous

*Some books on wood (a list). Mimeo. R399, revised May 1943.

*Wood's technological coming-of-age, by F. J. Champion. Mimeo. R1442. 1943.
..Same. Wood comes of age. The Scientific Monthly, Vol. LVIII, p. 195-206. March 1944.

*A hundred definitions pertaining to wood and other forest products. Tech. Note 240. Oct. 1932.

*The Forest Products Laboratory: a brief account of its work and aims. U. S. Dept. Agr. Misc. Pub. 306. 1938.

OTHER PUBLICATION LISTS ISSUED BY THE

FOREST PRODUCTS LABORATORY

The following lists of publications which deal with the other investigative projects of the Forest Products Laboratory are obtainable upon request:

Boxing and Crating -- Strength and serviceability of shipping containers, methods of packing.

Building Construction Subjects -- Partial list of Government publications of interest to architects, engineers, builders, and retail lumbermen.

Chemistry of Wood and Derived Products -- Chemical properties and uses of wood and chemical wood products, such as turpentine, alcohol, and acetic acid.

Glue and Plywood -- Development of waterproof glues, preparation and application of various glues, plywood manufacturing problems.

Growth, Structure, and Identification of Wood -- Structure and identification of wood; the effect of cellular structure of wood on its strength, shrinkage, permeability, and other properties; the influence of environmental factors, such as light, soil, moisture, and fire, on the quality of wood produced; and secretions of economic value produced by trees and their exploitation.

Fungus Defects in Forest Products (Pathology in cooperation with the Bureau of Plant Industry, Soils, and Agricultural Engineering) -- Heart rots of trees; decay, molds, and stains in timber, in buildings, and in wood products; antiseptic properties of wood preservatives.

Logging, Manufacture, and Utilization of Timber, Lumber, and Other Wood Products -- Methods and practices in the lumber-producing and wood-consuming industries; standard lumber grades, sizes, and nomenclature; production and use of small dimension stock; specifications for small wooden products; uses for little-used species and commercial woods, and low-grade and wood waste surveys.

Mechanical Properties of Timber -- Strength of timber and factors affecting strength; design of wooden articles or parts where strength or resistance to external forces is of importance.

Pulp and Paper -- Suitability of various woods for pulp and paper; fundamental principles underlying the pulping and bleaching processes; methods of technical control of these processes; relation of the chemical and physical properties of pulps and the relation of these properties to the paper-making qualities of the pulps; waste in the industry, for example, decay in wood and pulp, utilization of bark, white water losses, etc.

Seasoning of Wood -- Experimental and applied kiln drying, physical properties, air drying, steam bending.

Use of Wood in Aircraft Construction -- Strength, selection, and character of aircraft wood and plywood; fabrication and assembly problems; methods of calculating the strength of wooden parts; structure of wood in relation to its properties and identification.

Wood Preservation -- Preservative materials and methods of application; durability and service records of treated and untreated wood in various forms.